Remarks

Claim 9 is amended. Claims 17 to 25 are added. Claims 9 to 25 are pending in this application of which claims 9 and 18 are in independent form.

Claim 9 is amended herein to emphasize that the first and second pluralities of intersecting ribs conjointly define spaces corresponding to a plurality of polygonal areas or cavities on the surface of the spring body wherein air collects to form a plurality of air pillows as the first and second rigid end members move relative to each other. The antecedent basis for this additional feature and limitation is set forth in the paragraph starting at page 1, line 25, and continuing to page 2, line 3, of the applicants' disclosure.

Claim 9 was rejected under 35 USC 103(a) as being unpatentable over Drescher et al in view of Pohlmann et al or Leonard. Claim 9 has been amended as described above and the applicants will now show that this claim, as amended, patentably distinguishes their invention over this combination of references.

Applicants call attention to the fact that all of the three references applied against the claims are directed to a different class of spring, namely, an air spring which relies on a rolling-lobe type bellows for its operation. In contrast, the applicants' invention is directed to that class of springs which are characterized by a monolithic elastic spring body made of rubber or a rubber-like plastic.

Applicants submit that our person of ordinary skill seeking to arrive at the applicants' invention would not look for inspiration amongst rolling-lobe air springs. This is so because the spring action of rolling-lobe air springs as opposed to monolithic rubber air springs is basically very different.

Accordingly, it is clear to our artisan that air springs, which essentially comprise a hollow space enclosed by a rolling-lobe resilient member, operate with the resilient member rolling off on a connecting element by forming a rolling-lobe.

On the other hand, a person of ordinary skill would know that in springs having a monolithic elastic spring body, this roll off movement would not take place. In the case of elastic spring bodies, the entire spring comprises a rubber block which is pressed and comes into increasing contact against the connecting parts when the distance therebetween becomes less. However, this does not take place in an air spring where there is a rolling-lobe type movement. The different types of movement result especially because, in air springs, the carrying force is generated by a high pressure space enclosed by a flexible wall. This flexible wall is itself configured as a thin-walled rubber rolling-lobe flexible member.

In rubber springs of the applicants' invention, the carrying force is generated exclusively by the strength of the elastic spring body, that is, by the strength and the structure of the rubber body.

The person of ordinary skill therefore knows that the movement sequences in these two different constructions are completely different, namely, in the air spring, a rolling action

takes place with the rolling-lobe flexible member; while, in the rubber spring body, essentially a sliding or gliding takes place.

The primary reference, Drescher et al, is directed to an air spring, that is, a spring of the class which is very different from that of the applicants' invention and wherein the surface of the rolling-lobe flexible member is intended to roll off on a connecting part and is provided with ribs which extend essentially in the direction of movement.

These ribs are identified in Drescher et al by reference numeral 6 and are connected by narrow crosspieces 7 that are lower in elevation than the ribs 6 as emphasized in Drescher et al at column 2, lines 62 to 66:

> "...Disposed in the spaces between two adjacent ribs, are relatively narrow crosspieces 7 that <u>are lower</u> than the ribs 6; these crosspieces 7 are integrally formed onto the bellows wall in the transverse direction." (emphasis added)

From the above, it can be seen that even if our person of ordinary skill would do the unexpected and consult Drescher et al, our artisan still would not be able to arrive at the feature and limitation set forth in applicants' claim 9 as now amended, namely:

> "said second plurality of ribs intersecting said first plurality of ribs so as to form a multiplicity of intermediate spaces defining a corresponding plurality of polygonal areas or cavities on said surface wherein air collects to become trapped between said spring body and said rigid end members <u>to form a plurality of air pillows</u> as said rigid end members move toward each other <u>so as to permit said elastic spring body to slide on said air pillows</u>."(emphasis added)

The ribs 6 in Drescher et al roll in the direction of movement on the connecting part and minimize the rolling friction in that a contact between the rolling-lobe flexible member and the connecting body is essentially limited only to the surface of the ribs 6. The intermediate space between the ribs wherein the crosspieces 7 are located remain essentially free from contact with the connecting part of the air spring and, since crosspieces 7 are significantly lower in elevation, no air pillows can form.

From the foregoing it can be seen that not only is Drescher et al directed to a different class of spring but the ribs 6 provided on the rolling-lobe flexible member thereof function to achieve a different purpose, namely, to reduce the rolling friction between the rolling-lobe flexible member and the connecting part of the air spring.

The void left by Drescher et al is substantial and applicants submit that the secondary references Pohlmann et al and Leonard cannot fill this void.

Pohlmann et al is also directed to a rolling-lobe bellows for an air spring and therefore belongs to the same class of springs as does the rolling-lobe bellows of Drescher et al.

The air spring rolling-lobe flexible member of Pohlmann et al has a rib structure formed on the inner side thereof which has no rolling direction. The purpose of the rib structure in Pohlmann et al is to provide a reinforcement of the thin air spring wall in the case that the air spring is without pressure, that is, for the case wherein the air pressure in the air spring can no longer be maintained so that carrying force can

no longer be supported. The reinforcement is intended to prevent the thin wall flexible member from becoming destroyed because of friction in the emergency situation wherein there is a loss of air pressure.

Accordingly, the rib structure in Pohlmann et al does not operate to reduce friction in a rolling-lobe movement but simply to increase the strength in the case of an undefined folding or deformation of the rolling-lobe flexible member when the air spring is in the pressureless state and has collapsed.

Leonard too describes a spring belonging to the class of air springs having an air spring rolling-lobe resilient member. At its lower end, which rolls off on a roll-off piston 16, the flexible member has annular ribs 19 separated by annular grooves 20. This rib structure, however, functions to ensure that the rolling-lobe flexible member is reliably and tightly attached to the connecting part and can be clamped as described at column 2, starting at line 37, of this reference. Thus, Leonard shows only a rib structure which functions for the attachment of the air spring flexible member and bears no relationship to an actual movement or friction in the operating state of the air spring. Accordingly, this reference too cannot fill the void left by Drescher et al.

Whereas Drescher et al places the ribs on the outer side of the air spring rolling-lobe flexible member in order to reduce friction, Pohlmann et al provides ribs on the inner side of the air spring rolling-lobe flexible member in order to increase the strength of the flexible member in the case of a collapse. Finally, in Leonard, clamping ribs are provided at the lower end

of the air spring rolling-lobe flexible member in order to improve clamping between the flexible member and the connecting part.

From the foregoing, it can be seen that the above combination of references can not provide any suggestion which would lead our person of ordinary skill to:

(a) transfer the various types of ribs on the inner and outer sides of an air spring rolling-lobe flexible member to a rubber spring body which belongs to an entirely different class of springs as described above; and,

(b) to then so alter these types of ribs to form a rib structure so that the ribs, with the aid of polygonal-type hollow spaces, can enclose air pillows on which the elastic spring body can slide as set forth in applicants' claim 9.

For the reasons advanced above, applicants respectfully submit that the combination of Drescher et al, Pohlmann et al and Leonard cannot render the applicants' invention obvious. Accordingly, claim 9 should now patentably distinguish the applicants' invention over this combination of references and be allowable.

Claims 10 to 17 are all dependent from claim 9 so that they too should be allowable.

Independent claim 18 has been added and substantially parallels claim 9 but emphasizes that the elastic spring body acts solely by itself as the spring between the rigid end members. Added claims 19 to 25 are all dependent from claim 18. Accordingly, claims 18 to 25 should also now be allowable.

Reconsideration of the application is earnestly solicited.

Respectfully submitted,

Walter Ottesen
Reg. No. 25,544

Walter Ottesen
Patent Attorney
P.O. Box 4026
Gaithersburg, Maryland 20885-4026

Phone: (301) 869-8950

Date: February 19, 2008